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ICT TOOLS – A GATEWAY FOR EMPLOYMENT OF ENGINEERING GRADUATES

B. WAHEEDA PARVEEN[1] & K. V. DIVYA[2]

[1]Research Scholar, K. L. University & Associate professor, Srinivasa Ramanujan Institute of Technology, Ananta puramu, Andhra Pradesh, India

[2]Associate Professor, Department of English, K. L. University , Vaddeswaram, Guntur, Andhra Pradesh, India

ABSTRACT:

With the rapid advancement of Science and Technology, the new era of "digital age" demands for better professional communication and pose challenging tasks for the students and teachers of 21st century. As the world is moving rapidly into digital media and information, the role of Information and Communication Technology [ICT] is playing a vital role and influencing in every aspect of human life in the society. Present educational environment is a complex interplay of goals, needs, competing requirements, impediments and dwindling resources. To meet this challenge, both teachers and students must embrace new technologies and understand the latest ICT tools for learning and training. ICT acts as a catalyst for change in learning approaches, teaching methods, student centered learning, exchanging information and scientific research, and is a vehicle to enhance quality education. The article aims in improving communication skills and job-specific employability skills of Engineering graduates using ICT tools and its impact on the students, challenges facing by the teachers and administration. The paper investigates on what role ICT plays in affecting employability and e-skills? Thus, the paper suggests that ICT in higher education is not only a skill for educational development but also a way of socio-economic development of the society.

KEYWORDS: ICT, Quality Education, e-skills, Digital Age & Higher Education

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Original Article

1. INTRODUCTION

Information and Communication Technology [ICT] is a force that is making dynamic changes in many aspects of the life. It is influencing in all fields such as medicine, tourism, business, travel, education, entertainment, banking, law, engineering and architecture. As Daniel (2002) had pointed "ICTs have become one of the basic building blocks of the modern society". According to UNESCO (2002) information and communication technology (ICT) may be regarded as the combination of "Informatics Technology" with other related technology, specifically communication technology. The ICTs relevance to education, such as MOOCS, teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counselling, interactive voice response system, audiocassettes and CD ROMs etc have been used in education for different purposes (Sharma, 2003; Sanyal, 2001; Bhattacharya and Sharma, 2007).

ICT is the gateway to remove the barriers that are causing the problems of low rate of education in the society. It can be used as a tool to overcome the issues of cost, less number of competent teachers, and poor quality of education as well as to overcome time and distance barriers. People have to access knowledge via ICT to keep pace with the latest developments (Plomp, Pelgrum & Law, 2007). ICTs also allows for the creation of digital

resources like digital libraries where the students, teachers and professionals can access research material and course material from any place at any time (Bhattacharya and Sharma, 2007; Cholin, 2005).

ICT has an impact not only on what students should learn, but it also plays a major role on how the students should learn. Because the pedagogy of teaching has changed from traditional to modern method that is from teacher-centered to student-centered and the form of delivery from the content to competence. ICT can engage and inspire students, and this has been cited as a factor influencing ready adaptors of ICT (Long, 2001).

ICT makes multifaceted processes, gullible to understand through simulations that, again, contribute to authentic learning environments. Thus, ICT may function as a facilitator of active learning and higher-order thinking (Jonassen, 1999). The use of ICT may foster co-operative learning and reflection about the content (Susman, 1998). Furthermore, ICT may serve as a tool to curriculum differentiation, providing opportunities for adapting the learning content and tasks to the needs and capabilities of each individual pupil and by providing tailored feedback (Mooij, 1999; Smeets & Mooij, 2001)

Technology—from distance learning, to digitize teaching and learning resources, to information management and teacher support— has the prospective to break down some of these open barriers. ICT allows learners to learn better, faster, more, differently, on their own, or together, inside and outside the classroom, in a greater variety of ways and to be creative. This is a different learning culture, featuring: more independent learning; learners producing knowledge themselves; more content available via the Internet; easier distance learning; connection to experts and access to resources globally; access to quality learning material; more fun and motivation.

The rise of the ICT has brought about major changes in how individuals look for jobs and the factors that shape their success, such as their (online) social networks. ICT is playing a role – together with globalization, rapidly changing global markets, demographics – in changing the profile of employment and skilled-labour demand. In order to secure that first job as well as navigate in the global market, young graduates need both the technical skills and core skills to perform specific tasks by learning to learn, communication, problem-solving and teamwork.

2. LITERATURE REVIEW

2.1 Definition

ICT is an acronym that stands for

- Information
- Communication
- Technology

The term ICT is defined as “forms of technology used for creating, displaying, storing, manipulating and exchanging information”. (Meleisea, 2007). Technology has affected society and its surroundings in a number of ways. ICT refers to computer-based technologies such as PCs, laptops, tablets, smart phones and latest software’s and internet based technologies such as e-mail, websites, face book, twitter, podcasts etc for the purpose of teaching communication skills and learning. (Davies & Hewe, 2009).

2.2 Scope of Employability Skills

Employability Skills can be defined as

the skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he/she so wishes or has been laid off and enter more easily into the global market at different periods of the life cycle. Individuals are most employable when they have broad-based education and training, basic and portable high-level skills, including teamwork, problem solving, information and communications technology (ICT) and language skills. This combination of skills enables them to adapt to changes in the world of work.

Employability Skills focuses on several factors – a basis of core skills, access to education, availability of training opportunities, motivation, and skill and support to take advantage of opportunities for continuous learning, and recognition of acquired skills – and is significant for enabling employees to attain respectable work, and cope up with change and for enabling enterprises to adopt latest technologies and enter global markets.

2.3 Implementation of ICT on Employability Skills

ICT implementation and adoption on employability skills have facilitated and offered opportunities for modern ways of working, and for organizing and managing work. Some researchers have focused on the idea that there is a shift from an industrial to an information society in response to globalization and ICT implementation.

2.4 How ICT Affects Employability

- Helps to access with Internet facility to learn core and technical skills.
- Offers online learning programmes for specialized technologies like CAD, CAM, IoT, Big Data, Cloud Computing, Quantum Computing etc.
- Provide e-Mentoring that links students with professionals, as mentors to give students access to new professional networks, a clear understanding of what it means to work in the formal sector, and the opportunity to practice professional communications skills using ICT tools.
- Digital Learning is provided on a grand scale and the students acquire the potentiality for lifelong learning, once the initial investment in hardware and software is made.
- Combine civic and digital education to empower youth to make them to understand the challenges that face their communities and work together to solve them.
- Reinforce "work-related" issues such as skills development, entrepreneurship and professional guidance in teachers' education curricula.
- Ensure that newly qualified teachers have the appropriate skills and practical experience
- To foster core work skills and that they can engage with digital media.

3. METHODOLOGY

The study used a sample of 60 students who are good at academics (38 Female students and 22 male students) of final B. Tech Course from five branches at Srinivasa Ramanujan Institute of Technology, JNTUA University. All the final

year students irrespective of their branches who are pursuing their B. Tech course are taking special training on Placements, Communication skills and analytical abilities, Academic Writing and Verbal Ability are involved. The aim of the study is to provide the background for a discussion of how ICT affects employability for the engineering graduates.

Section 4.1 provides an overview of relevant definitions and concepts such as the digital divide and digital literacy's and discusses their relevance to find and sustain employment. Section 4.2 considers the different ways in which ICT skills can enhance employability, in order to empower individuals to accomplish their aims and objectives in life. Section 4.3 leads to a discussion of ICT enabled methods for exploring education and careers, including tools for assessing and profiling individual skills for employment, and for providing access to careers information and guidance. Section 4.4 looks at the role of ICT in job search and the processes of recruitment and selection.

4. RESULTS

Digital Divide and Digital Literacy

"Digital divide" can be defined as "within populations, the gap between those who can access and use information and communication technologies (ICT) effectively, and those who cannot" and "Digital Literacy" as "the competence to use technology (ICT)" (CEDEFOP, 2009). The definition provided earlier by the OECD (2001: 5) also focuses on this gap but also mentions the importance of the difference in opportunities to access ICTs and the use of the internet. As (Lindsay,2005) had pointed in his study that unemployed job seekers, experiences of the digital divide to the access of ICT for economic capital which they lack. This is supported by evidence suggesting that the barriers to digital inclusion include: (1) access, (2) motivation, and (3) skills and confidence (Fresh Minds, 2008). Klecun (2008) highlights that individuals need to develop ICT-related skills to make use of new technologies in a useful way as it includes technical, literacy and numeracy skills. Johnston and Webber (2006) suggest that a curriculum for such a discipline would focus on information literacy for citizen's economic growth and employability.

Digital literacy is defined as the skills, knowledge and understanding that enables critical, creative, discerning and safe practices when engaging with digital technologies in all areas of life. It includes several different elements from e-safety to creativity, from technical skills to cultural understanding. Moreover, the ability to find and evaluate online information has been identified as 'digital fluency' (Bartlett and Miller, 2011). Though technical skills are seen as a central component, "having technical skills at the core of a digital competence model does not give enough importance to other equally relevant aspects". (Ferrari, 2012: 43).

4.2 ICT Enhances Employability

Accessing ICT is not sufficient if the individual aims at the employment as they need to have good motivation, skills and confidence. The role of teacher is to provide the awareness on the latest technologies and use of ICT, and they need to make use of it. (Loveless, 2006). ICT promotes Employability through online programmes like promoting careers skills, information and guidance. (Venable, 2010). On the other hand, the teaching-fraternity should also update with the latest technologies in order to meet the students' demand. The individual need to find and sustain employment must have access to ICTs; beside e-inclusion intermediaries.

It provides awareness on global market opportunities, knowledge of employer's recruitment practices. It also builds confidence among the students about the realistic approach to job targeting. The findings with my sample of students reflect that the students were able to communicate with good confidence by involving themselves in team work

and motivating each other. Besides, the students who are not aware of the global market are capable of using multiple websites for their employment and uploading their Curriculum Vitae (C.V) and the ability to fill in a proper way and the ways to prepare for interviews effectively.

4.3 Role of ICT in Building Confidence and Upgrading Skills

If the student wants to be employed, confidence is most important attribute as part of employability skills. Hence, the role of ICT in building confidence and upgrading skills can be considered as "GATEWAY SKILLS" for engineering. However, ICT skills can also serve to enhance a person's employability profile particularly when combined with other skills and attributes or acts as a catalyst for further skills development. It is important to noteworthy that the potential for ICT skills is to meet the demands of employers' needs and to the extent to which they are deployed at pace. It is the responsibility of all the teaching community and the work environment in enhancing ICT skills and if not, it results on the impact of employability of students.

The findings reveal that an engineering graduate need to meet all the standards of the employer and to acquire the skills to match the global standards. A student cannot excel in the core with the technical skills alone and he/she must possess the knowledge of using ICT tools. They should possess confidence, know latest technologies, time management, and access to cultural capital and whether adopt flexible working practices. The learners know about the social media where they the jobs are advertised locally and able to share the information among their friends using ICT tools. With the help of social media, the students share and exchange their ideas not only in academics but also in non-academics. It resulted in doing of interdisciplinary projects and had come with good results.

4.4 Recruitment and Selection Process

In the process of recruitment and selection, modern ICT tools are used. In the modern era, the job-vacancies and various job opportunities are posted on online and facilitating new forms of application and creating new job opportunities for job seekers to access over the Internet. However, the lack of knowledge on ICT tools makes the students dissatisfied. Therefore, initiatives steps should be taken in order to support and for the development of ICT tools i.e e-skills.

It is noticed that now-a-days, most of the recruitment and selection process is done through e-recruitment and e-selection only. In the process of e-recruitment, the employer has to advertise/ search for applicants and/or notify potential applicants of job opportunities. The job seeker need to appear for the written exam, he/she has to make use of ICT tools like online websites and the off-the job and on-the-job trainings including e-learning. The system itself evaluates the students and the results are displayed within a short span of time which benefits the employers in terms of cost, convenience, ease of communication, flexibility in terms of content and ease of making changes to process and practice.

E-selection promotes the students to watch videos and on line programmes for more practice of the selection procedure i.e presentation skills, body language and interview skills. Most of the students are browsing websites of aptitude tests in order to improve vocabulary, communication and coding like www.codechef.com, www.britishcouncil.com, www.bankersadda.com. The aspirants of job are also prepared how to write C.V and present before the interviewer with the help of mock interviews.

4.5 ICT Promotes Careers Guidance and Information

ICT is providing access to careers guidance and information. The term 'careers guidance' is defined as the way to

provide the guidance and counseling services for the students who are in dire need of employment and seeking employment as they move from campus to corporate. Careers information includes a range of data on the global market, information on vacancies and learning opportunities, all of which can be presented in a written or pictorial format.

It is the responsibility of the teacher to provide career guidance and give reliable information for the student. It resulted in the form of higher education, open challenges to the IT market, preparing for competitive exams and general awareness on the core sectors and the opportunities available for the engineering graduates with good employability skills. The students involve in co-operative learning. All the above had resulted in the form of videos and open-talk by the industry experts and presentations which are part of ICT tools. The students

5. RECOMMENDATIONS

In order to harness the many opportunities brought out by ICT, and to overcome the many challenges that face proper utilization of ICT in engineering education, educationalists and policy makers need to take a number of initiatives, among which are

- Adequate funding is necessary for the entire educational sector.
- Implement policies on the private sectors for the ICT development.
- Be affordable and sustainable access to ICT infrastructure.
- Provide faculty and staff training.
- Able to provide adequate human resource development.
- Proper training for the students towards the ICT tools.
- High speed Internet access, sophisticated simulation soft wares.

6. CONCLUSIONS

Education is the cornerstone of sustainable development. The curriculum in the educational institutions needs to be transformed and it is the process of re-skilling of teachers. ICT tools should be implemented in the engineering education as there is good scope of blrended- learning, awareness on the latest technologies, exposure to the global market. Above all, it builds confidence through e-learning among the engineering graduates with fun and promotes innovative thoughts in order to improve their employability skills. Overall, skills assessments tools can provide a holistic approach in which individuals can explore future education, employment and career choices. Besides, ICT has also led to an increased demand for high-skills and a ‘professionalization’ of the workforce, but there has also been growth in low paid and unskilled labour.

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